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10/799,659	03/15/2004	Shin Yasuda	119088	8600

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EXAMINER

CHANG, AUDREY Y

ART UNIT PAPER NUMBER

2872

DATE MAILED: 01/10/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.	Applicant(s)	
10/799,659	YASUDA ET AL.	
Examiner	Art Unit	
Audrey Y. Chang	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 02 November 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1,4-9 and 12-24 is/are pending in the application.
- 4a) Of the above claim(s) 15-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 4-9, 12-14 and 21-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Remark*

- This Office Action is in response to applicant's amendment filed on November 2, 2005, which has been entered into the file.
- By this amendment, the applicant has amended claims 1, 4-6, 9, 12, 21, has canceled claims 2-3 and 10-11 and has newly added claims 22-24.
- **Claims 15-20 are withdrawn** from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on May 26, 2005.
- Claims 1, 4-9, 12-14 and 21-24 remain pending in this application.

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. **Claim 6 is rejected under 35 U.S.C. 112, first paragraph**, as based on a disclosure which is not enabling. *Polarized recording reference, object beam and reconstructed beams and certain kind of polarization rotation means* are **critical** or **essential** to the practice of the invention, but not included in the claim(s) is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). The specification and claims **fail to** teach how could "the polarization state of a reconstructed beam obtained from the re-recorded hologram to be different from a polarization state of reconstructed beam obtained from the hologram preceding the re-recording" as recited in claim. There is not any polarization state involved in any of the beams stated in the claim or its based claim, and most

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importantly there is not any polarization rotation means stated in the claims therefore the change of polarization state cannot be achieved. The polarization state of a light beam cannot be changed by itself.

**As applicant's arguments and its own disclosure reference to specification pages 24-25 ALSO positively state that other essential elements are indeed needed in order for the polarization state of the reconstruction beam to change. The rejection therefore still stands.**

### *Claim Objections*

*The claims are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.* The applicant is respectfully reminded that it is **applicant's responsibility** to clarify **ALL of the discrepancies, errors and confusions** in the claims to make the claims in comply the requirements of 35 USC 112, first and second paragraphs. The examiner can only point out a few of the indefiniteness.

**3. Claims 21, 1-14 and 22-24 are objected to because of the following informalities:**

(1). The amended phrase "wherein the subsequent re-recording and retaining is preformed when ..." recited in claim 21 is confusing and indefinite since in the earlier part of the claim the "subsequent re-recording and retaining step" has already been performed. So it is not clear if the subsequent step is or is not performed?

(2). The newly added claim 22 recites the phrase "wherein the subsequent re-recording and retaining is preformed when ..." recited in claim 22 is confusing and indefinite since in the earlier part of the claim the "subsequent re-recording and retaining step" has already been performed. So it is not clear if the subsequent step is or is not performed?

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(3). The amended phrase “an intensity of a reconstructed beam fallen predetermined value or less” recited in amended claim 21 is confusing and indefinite since it is not which reconstructed beam is referred here and what is considered to be the “predetermined value”? Since there is no definition of the “predetermined value” it can only be arbitrarily set at any value. Furthermore what is considered to be “fallen”? Does it mean reduced but reduced with respect to what??

(4). The phrase “the number of times of reproduction has exceeded a predetermined value” recited in newly added claim 22 is confusing and indefinite since it is not clear what is this “predetermined value” and it appears that it can be arbitrarily set.

(5). The term “**preformed**” recited in claims 21 and 22 is believed to be typographic error for them “performed”.

(6). The **amended** phrase “the subsequent re-recording and retaining includes position information representing a position” recited in *claims 4 and 12* is completely confusing since it is not clear what does it mean that the “subsequent reproducing and retaining”, which is namely a recording step, may include a position information???

(7). The term “re-record and retain” has been used through out the claims, and it is still confusing and indefinite since it is not clear what exactly does it mean by “retaining”.

**Appropriate correction is required.**

#### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

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international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**5. Claims 21, and 9 and newly added claims 22 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by the patent issued to Moss et al (PN. 5,016,953).**

Moss et al teaches a *method for recording hologram* wherein a *master hologram* (33a, Figure 3) having a *computer generated hologram recorded* therein is illuminated with reconstruction beam (46, Figure 3) to *reproduce* the recorded computer generated hologram information and the reconstructed information is used to re-recording and retaining a *copy hologram* (47, Figure 4) in step (50, Figure 4). The copy hologram (47) is then used as a master hologram such that recorded hologram is *reproduced* by illuminating it with reconstruction beam to *re-recording* and *retaining* the reproduced information as *another copy hologram* (49). The process is then repeated and the original computer generated hologram is being reproduced and re-recorded and retained in each of the subsequent re-recording process until a *final hologram* is made.

**Claim 21 has been amended** to include the phrase “the subsequent re-recording and retaining is performed when an intensity of a reconstructed beam has fallen to predetermined value or less”. Moss et al teaches that the subsequent re-recording and retaining the copy hologram is performed to ensure the final copy of the hologram has a desired uniformity in the intensity or brightness and the exposure beam (i.e. the reconstructed beam for recoding the next step copy hologram) is less intense than the earlier made hologram which means the intensity of the reconstructed beam is less. Since the claims fail to teach what is this predetermined value, this value can be arbitrarily set and it means there must be at least one “predetermined value” such that the intensity of a reconstructed beam has fallen to.

**The newly added claim 22** recites that the “subsequent re-recording and retaining is performed when the number of times of reproduction has exceeded a predetermine value”. Moss teaches that the reproduction for re-recording process may be repeated as many times as desired to provide desired

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uniformity in the final copy of the hologram, (please see column 5, lines 5-10), this means the number of the reproduction for re-recording must exceed a “predetermined value” since the claim fails to define what is this value and it can therefore be arbitrarily set.

With regard to claim 9, Moss et al teaches that a different recording medium is used in the subsequent re-recording process which means the re-recording is at different position with regard to the original master hologram, (33a).

**This reference has therefore anticipated the claims.**

**6. Claims 21, 9, 13 and newly added claims 22 and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by the patent issued to Tanaka (PN. 6,707,585).**

**Tanaka** teaches a *method* for holographic recording and reproducing wherein a *prerecorded hologram* (PC, Figure 5) in a predetermined position of a *recording medium* (10) is *reproduced* by the illumination of the *reproduction beam* (12c) and the reproduced information is *re-recorded and retained* in the recording medium by using a *recording reference beam* (12b). Tanaka teaches that the reproduced hologram information is re-recorded and retained at a different position (RC2) of the recording medium with respect to the prerecorded hologram (PC).

**Claim 21 has been amended** to include the phrase “the subsequent re-recording and retaining is performed when an intensity of a reconstructed beam has fallen to predetermined value or less”.

However the claim fails to define what is this “predetermined value” it therefore can be arbitrarily set. It is implicitly true that the intensity of a reconstructed beam in the re-recording process can be less than an arbitrarily set “predetermined value”.

**The newly added claim 22** recites that the “subsequent re-recording and retaining is performed when the number of times of reproduction has exceeded a predetermine value”. However the claim fails

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to define what is this "predetermined value" it therefore can be arbitrarily set. It is implicitly true that number of times of the re-recording process exceeds a predetermined value such as 1.

With regard to claim 13, Tanaka teaches that the recording medium is a photorefractive medium, (please see column 2, lines 68).

**This reference has therefore anticipated the claims.**

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. **Claims 1-7 and newly added claim 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Tanaka in view of the patent issued to Newswanger et al (PN. 6,806,982).**

The *method* for holographic recording and reproducing taught by Tanaka as described for claim 21 above has met all the limitations of the claims. This reference however does not teach explicitly that the re-recorded holographic information is at the same position of the recording medium as the prerecorded hologram is recorded. Newswanger et al in the same field of endeavor teaches a way of achieving high diffraction efficiency for the recorded hologram by having the *same* interference fringes patterns being exposed and re-recorded at the same portion of the recording medium multiple times, (please see column 6, lines 53-58). It would then have been obvious to one skilled in the art to modify the arrangement and the method of holographic recording and reproducing of Tanaka by re-recording the



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prerecorded hologram at the same position of the recording medium a multiple times for the benefit of making the recorded hologram with higher and improved diffraction efficiency.

With regard to claims 2-3, the conditions concerning the intensity of the reconstruction beam and the number of times of re-recording are implicitly met by the re-recording process.

With regard to claim 4, these references do not teach explicitly to also record the position information however the information that intended to be recorded as a hologram is considered to be an obvious matters of design choice to one skilled in the art since it does not change the method of recording and such modification certainly may meet the particular needs of the application as one desires.

With regard to claim 5, it is implicitly true that the intensity of the reconstructed beam certainly has an intensity value that is detectable since the reproduced image is detected by the CCD detector (20).

With regard to claim 6, the features are not enabled by the disclosure in the specification and the claim; they therefore cannot be examined here.

With regard to claim 7, Tanaka teaches that the recording medium is a photorefractive medium, (please see column 2, lines 68).

**9. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over the patents issued to Tanaka and Newswanger et al as applied to claims 21 and 1 above, and further in view of the patent issued to Kawano et al (PN. 6,452,890).**

The method for holographic recording and reproducing taught by **Tanaka** in combination with the teachings of **Newswanger et al** as described for claims 21 and 1 above have met all the limitations of the claim. These references however do not teach explicitly that the recording medium may also comprise the particular polyester claimed. **Kawano et al** in the same field of endeavor teaches that the holographic recording medium may comprise polarization sensitive material such as polyester with azobenzene side chain, (please see column 10, lines 32-35). It would then have been obvious to one skilled in the art to

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apply the teachings of **Kawano** et al to modify the holographic recording layer material of Tanaka to use the particular polyester material for the benefit of making the holographic recording medium sensitive to the polarization state of the recording and reproducing beams so that *polarization induced* holographic data can be recorded, which gives the advantage of increasing the types of holographic data can be recorded by the system.

Furthermore, it has been held it is within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

**10. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Tanaka.**

The *method* for holographic recording and reproducing taught by Tanaka as described for claim 21 above has met all the limitations of the claims.

With regard to claim 12, this reference does not teach explicitly to also record the position information however the information that intended to be recorded as a hologram is considered to be an obvious matter of design choice to one skilled in the art since it does not change the method of recording and such modification certainly may meet the particular needs of the application as one desires.

**11. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over the patents issued to Tanaka and in view of the patent issued to Kawano et al (PN. 6,452,890).**

The method for holographic recording and reproducing taught by **Tanaka** as described for claims 21 and 9 above have met all the limitations of the claim. These references however do not teach explicitly that the recording medium may also comprise the particular polyester claimed. **Kawano** et al in the same field of endeavor teaches that the holographic recording medium may comprise polarization sensitive

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material such as polyester with azobenzene side chain, (please see column 10, lines 32-35). It would then have been obvious to one skilled in the art to apply the teachings of **Kawano** et al to modify the holographic recording layer material of Tanaka to use the particular polyester material for the benefit of making the holographic recording medium sensitive to the polarization state of the recording and reproducing beams so that *polarization induced* holographic data can be recorded, which gives the advantage of increasing the types of holographic data can be recorded by the system.

Furthermore, it has been held it is within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

#### ***Response to Arguments***

12. Applicant's arguments filed November 2, 2005 have been fully considered but they are not persuasive. The newly amended claims and newly added claims have been fully addressed and they are rejected for the reasons stated above.

13. In response to applicant's arguments which state that the cited **Moss** reference performs the subsequent reproducing and retaining until a desired brightness uniformity is reached rather than when an intensity of a reconstructed beam has fallen to a predetermined value as recited in the instant application, that differs from the instant application, the examiner respectfully disagrees for the reasons stated below. Firstly, the desired brightness uniformity of the final hologram in the cited Moss is referred to the "**reproducing beam**" from the final hologram that has a desired brightness uniformity which implicitly meets any **arbitrarily set** "predetermined value or less". The applicant is respectfully noted that the *brightness* of the hologram is really referred to the *brightness* or *intensity* of the **reconstructed beam** from the hologram.

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14. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., intensity sensor or the like that would measure the intensity of the reconstructed beam or would compare the intensity of the current reconstructed beam with the previous one, (as in page 10 of the Remark)) are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

15. In response to applicant's arguments which state that the combination of the cited Newswanger reference to cited Tanaka reference would alter the principle operation of cited Tanaka reference, the examiner respectfully disagrees for the reasons stated below. Firstly Tanaka teaches specifically that the holographic recording medium (10) is placed on a movable stage which means that the recording position can be easily modified and changed so that the hologram is re-recorded at the same position. Secondly by simply rearranging the direction of the mirror (320 or 310) the reproducing beam can be easily redirected to the same recording location. The phase relationship of the reference beam, reproducing beam, reconstructing beam are all properly arranged so that same hologram information is repeatedly recorded in the medium.

### *Conclusion*

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH

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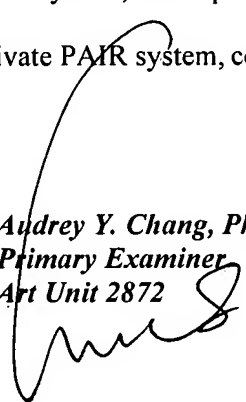
shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*Audrey Y. Chang, Ph.D.*  
*Primary Examiner*  
*Art Unit 2872*



A. Chang, Ph.D.